

Clemson IMPACTS

Clemson University Public Service Activities

Spring 2006



Variable rate
irrigation reduces
water use



Sandhill Lake
House is open for
business



Protect your
investment from
termites



Poultry producers
receive bird flu
update



Youth Development
Center wins
national gardening
award



Coker Genetics
Chair named



Letter from the Vice President

A variable rate irrigation system being tested at the Edisto Research and Education Center puts water only where it's needed in agricultural fields and sod farms. This system uses a computer program to control the amount of water sent to each nozzle, based on the soil type and terrain. It promises to significantly reduce water use, energy costs and run-off from fields.

Coastal community leaders can see the impact that population growth is having on their counties through a growth model developed by policy researchers in the Strom Thurmond Institute. The model gives policy makers a visual representation of how much land is being converted from rural to urban as new residents move to South Carolina.

Also, as more people move into rural areas around the state, they create opportunities for wildlife to damage home landscapes, as well as agricultural crops. To reduce damage from nuisance wildlife such as deer, Clemson scientists provided training in best management practices for wildlife control specialists at the Pee Dee Research and Education Center.

Consumers are becoming more conscious of the health benefits found in certain foods. One of the surprising discoveries is that pasture-raised beef contains healthy fats that can reduce heart disease and cancer. A consumer taste-test of the heart-healthy beef had participants asking Clemson livestock scientists for more.

Each year, there are more children growing up in single-family homes. Clemson youth development specialists convened a national meeting of educators and human service workers to address the changing needs of families, youth, and communities. The conference offered an opportunity for professionals from 29 states to share program ideas.

These and more Clemson Public Service programs are featured in this issue.

Sincerely,

John W. Kelly

Vice President for Public Service and Agriculture

Knowledge for living. Knowledge for life.

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PUBLIC SERVICE

Clemson Impacts, a quarterly publication of Clemson Public Service Activities, is available to South Carolina residents upon request. *Clemson Impacts* is also available on the web www.clemson.edu/public/

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Clemson helps soybean growers fight rust

By Tom Lollis

Clemson scientists will keep a close watch for signs of Asian Soybean Rust this year, a disease that could cause extensive crop damage for growers if left unchecked.

South Carolina growers harvested 420,000 acres of soybeans in 2005, worth about \$48 million. They spent at least \$500,000 spraying fungicides for rust, based on signs of the disease detected in sentinel plots planted under the direction of John Mueller, plant pathologist at Edisto Research and Education Center.

Mueller said that 15 sentinel plots established around the state for this growing season will put every soybean grower within 50 miles of a monitoring site. Growers will be advised to spray only if rust is detected in the area and beans are flowering.

The state Department of Agriculture, Farm Bureau and Soybean Board honored Mueller and David Howle of Clemson Regulatory Services for their efforts protecting the crop last year. Mueller expects more rust this year than last but says that growers should come out all right if they keep track of developments through the USDA website at www.sbrusa.net and through his electronic newsletter. To subscribe, e-mail jmlr@clemson.edu.

For more information: or John Mueller, 803-284-3343, ext. 223, jmlr@clemson.edu, or www.ces.ncsu.edu/depts/pp/notes/Soybean/soy008/soy008.htm



Peanut growers urged to take care of the basics

By Tom Lollis

The state's peanut crop, worth about \$30 million, increased to around 60,000 acres in 2005, well above the 33,000 acres harvested in 2004. But growers need to take care of the basics if they want to make a profit, said Jay Chapin, Clemson Extension peanut specialist.

Getting more than a dollar back for every dollar invested is important, especially in a year like 2005. Late summer drought and heavy rains at harvest reduced the average yield to 2,800 pounds per acre last year, down from the 3,400 pounds in 2003 and 2004.

Still, some growers had good yields last year. Britt Rowe of Riverside Farms in Lee County averaged 4,493 pounds per acre to win the State Peanut Yield Contest sponsored by the S.C. Peanut Board. Ricky Kneece of Lexington County was District II champion with 4,112 pounds per acre.

Chapin advises growers to follow Extension programs for control of weeds, diseases, and insects; to use liquid inoculants instead of granular materials; and to avoid nutrient supplements that have not increased yields in tests at Edisto Research and Education Center in Blackville.

He also advises against overuse of chemicals containing strobilurin for disease control. More than two applications a year could cause diseases to become resistant to the treatment.

For more information: Jay Chapin, 803-284-3343, ext. 226, jchapin@clemson.edu.



Photo by Tom Lollis



Variable rate irrigation reduces water use

By Tom Lollis

For many South Carolina farmers the center-pivot irrigation system is a reliable tool to ensure good yields on row crops, vegetables or sod.

However, this traditional irrigation system distributes the same amount of water everywhere, whether it's needed or not. Boggy areas get the same amount of water as sandy areas. Roads and waterways get watered, and areas where pivots overlap can get irrigated twice. Computer-controlled variable rate irrigation uses sensors and computer controls to solve those problems, based on soil type and terrain.

"Variable rate irrigation also means less energy is used for pumping, less water runs off the field, and less pollution reaches streams," said Ahmad Khalilian, agricultural engineer at Clemson's Edisto Research and Education Center in Blackville.

Under a \$500,000 grant from the Natural Resource Conservation Service, he has installed three on-farm test systems. One is at New Life Turf, Inc., in Norway; one is at Drake and Moss Perrow's farm in Cameron; and the third is at Edwin Dargan's farm in Darlington County. Two more systems will be installed in 2006.

Khalilian expects these tests to show water savings of 1.4 million to 2.8 million gallons per year, similar to test installations in Georgia.

For more information: Ahmad Khalilian, 803-284-3343, ext. 230, akhlln@clemson.edu, or Will Henderson, 803-284-3343, ext. 244, whende2@clemson.edu.

Clemson and Africa University help vegetable growers

By Tom Lollis

Clemson scientists are working with Africa University in Zimbabwe to help small farmers improve vegetable production, protect the environment and fight hunger.

Entomologist Gloria McCutcheon first visited Zimbabwe in 2004, sponsored by the United Methodist Church, to teach students, technicians and farmers how to identify the families of insects that are important as biological control of crop pests.

"The goal is to help small farmers increase yields of leafy greens, be good stewards of the environment, and produce foods without excessive pesticide residues," McCutcheon said. She is principal investigator for the project and Powell Smith, Extension vegetable entomologist, is co-investigator. McCutcheon is stationed at Clemson's Coastal Research and Education Center in Charleston; while Smith is at the Edisto Research and Education Center in Blackville.

Since many vegetable crops grown in Zimbabwe are similar to those grown in South Carolina, McCutcheon hopes Clemson scientists can find natural enemies of plant pests that can be imported to this country to help protect crops here.

The universities' partnership has created a graduate assistantship. Walter Manyangarirwa will work this summer at the Edisto Center with Smith and McCutcheon, then return to Zimbabwe next year to teach students at Africa University.

For more information: Gloria McCutcheon, 843-536-5385, gmccthn@clemson.edu.



Photo by Tom Lollis

Cattlemen look to Clemson sales to improve herds

By Tom Lollis

South Carolina beef producers look to Clemson for performance-tested sires to improve their herds.

Producers bought 44 bulls at the Edisto Research and Education Center sale in Blackville and 62 at the Clemson sale, according to Larry Olson, bull testing program coordinator. Breeds included Angus, Balancer, Gelbvieh, Red Angus and Simmental.

The bull test program has provided purebred breeders and commercial cow-calf producers with improvement sires since 1969. The commercial bulls sire good replacement heifers and calves that weigh at least 600 pounds by eight months of age.

"These are the calves in demand by cattle feeders, bringing the top prices and making a profit every year," Olson said.

For more information: Larry Olson, 803-284-3343, ext. 231, lolson@clemson.edu.



Photo by Tom Lollis

Growth model helps leaders plan

By Debbie Dalhouse

Coastal community leaders are facing unprecedented population growth from new residents moving to the state. A team from Clemson's Thurmond Institute of Government and Public Affairs has developed a growth projection model to help policy decision makers.

Leaders in the three-county Charleston area were shocked when the team, led by Jeff Allen, projected that urban land area could expand by more than tenfold. At the current rate, the Charleston urban "footprint" would grow from 70 square miles in 1973 to 868 square miles in 2030.

"Clemson's Charleston region growth model captured, for the first time in a visual way, the rapid change that is happening along the coast in terms of population and urban growth," says Rick DeVoe, executive director of the Sea Grant Consortium. "Decision makers can use these projections to plan for growth and adjust their policies."

The growth model was expanded to include the entire eight-county coastal region with funding provided by the National Oceanic and Atmospheric Administration. It also is being applied to other regions of the state.

For more information: Jeff Allen, 864-656-0228, jsallen@clemson.edu or www.strom.clemson.edu/teams/dctech/urban.html.

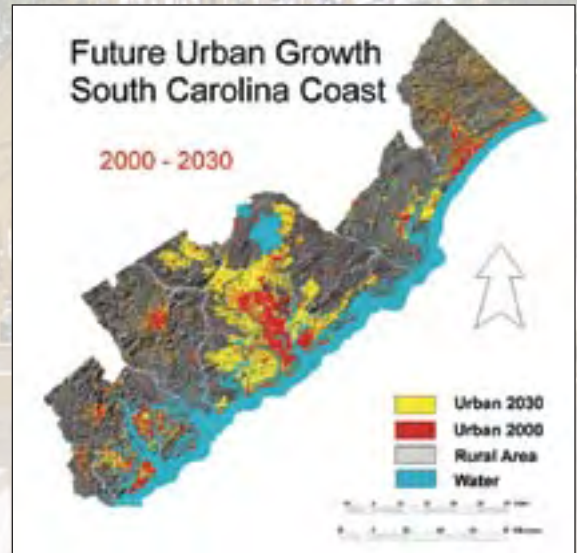


Photo credit: S.C. Water Resources Center

iCARE meets community needs

By Debbie Dalhouse

A Clemson service learning project is matching business students with Upstate communities to meet real-world needs.

Called iCARE, the project is part of Clemson's Alliance for Small Businesses and Nonprofit Organizations. It has involved more than 350 students and more than 25 community groups in Anderson, Oconee, Pickens, and Greenville counties. Services include creating a computer-training program for senior citizens, building a database to manage medications for at-risk youths, developing job descriptions for public libraries, and providing an online database for small-business resources.

The Alliance won the InnoVision Technology Award for Community Service in 2005. "The judges were impressed with the innovative blend of community service and educational aspects of iCARE, as well as the collaborative nature of the program," said Amy Robichaud, InnoVision advisory board chair.

Management professor Michael Crino and marketing professor Charles Duke planted the seeds for the alliance several years ago through a partnership with upstate universities.

For more information: Michael Crino, 864-656-3753, crino@clemson.edu, Charles Duke, 864-656-5286, dcharle@clemson.edu, or www.scbizhelp.org/.



Photo by Debbie Dalhouse

Sandhill Lake House is open for business

By Debbie Dalhouse

Renovations are complete at the Sandhill Lake House and the Research and Education Center in Columbia is once again accepting reservations to use the facility.

The 3,000 square-foot Lake House serves as a central meeting place for public and private organizations across the state. "In the year before renovations began, nearly 13,000 people attended 268 meetings at the Lake House held by 157 organizations," said Mac Horton, center director.

Through the Institute for Community and Economic Development, the Sandhill Center provides multidisciplinary focus to help South Carolina communities balance development with environmental stewardship.

Renovations used environmentally sensitive methods, including recycled heart pine from other structures on the property. New pressure-treated decking and cypress siding were donated by members of the S.C. Forestry Association.

For more information: Sandhill Research and Education Center, 803-788-5700, or www.clemson.edu/sandhill/.



Photo by Darryl Glibczynski

Clemson offers training to reduce wildlife damage

By Tom Lollis

Nuisance wildlife, especially deer, can be a dangerous and costly problem for both suburban homeowners and farmers. To address this issue, Clemson wildlife scientists offered training in best management practices at the Pee Dee Research and Education Center in Florence.

The course was designed for nuisance wildlife control specialists, natural resource professionals, pest control operators, landscapers, trappers and public agencies. Training focused on wildlife biology, control techniques, laws and regulations, and access to the latest research.

Deer in residential communities illustrate how a species can become a nuisance. In many areas, they are so numerous that the risk is significant for deer-vehicle accidents, Lyme disease and other health hazards. Homeowners can find deer in their yards, foraging on costly landscaping. And South Carolina farmers lose \$52 million each year due to crop damage by deer.

For more information, Greg Yarrow, 864-656-7370, gyarrow@clemson.edu.

Create an energy-efficient home with landscaping

By Bob Polomski

Properly positioned trees, shrubs, and vines can save as much as 50% on heating and cooling costs.

In winter, a hedgerow or screen of trees or shrubs planted on the northwest side blocks cold winds better than a solid barrier. These windbreaks are usually evergreens, but deciduous shrubs or trees can block up to 60% of the wind even when leafless.

In summer, deciduous trees, a vine-covered trellis or arbor on the south side of a house will block the hot summer sun. Deciduous trees planted on the east, west, and south sides of a home provide shade in summer and allow warming sunlight in winter.

These and more tips are available in the booklet *Landscape Design for Energy Efficiency*, available at www.clemson.edu/psapublishing/ (Pub Code EC 706). This Clemson Extension publication was produced in association with the S.C. Energy Office and the S.C. Forestry Commission.

For more information: Bob Polomski, 864-656-2604, bplmsk@clemson.edu.

Protect your investment from TERMITES

By Tracy Outlaw

The Southeast is a high-risk area for subterranean termites, which burrow upward through foundation cracks and attack the wood of the house. Over time, the whole structure of a house is weakened and creates an economic risk for what is usually a homeowner's largest investment.

In South Carolina alone, more than 25,000 new houses are constructed yearly. Between existing dwellings and new ones, the state's structural pest control industry does an estimated \$269 million worth of business annually. Clemson's Department of Pesticide Regulation is authorized by the state to oversee licensing and performance of the industry.

To obtain a license, pest control operators must pass a comprehensive certification exam and demonstrate financial responsibility for property damage and public liability.

Licensed businesses will have a Department of Pesticide Regulation decal and their names and business license numbers on their vehicles. Pest control technicians carry identification cards that verify their training.

If you have pest control questions or believe a violation may have occurred, call 864-646-2150 or your county Clemson Extension office.

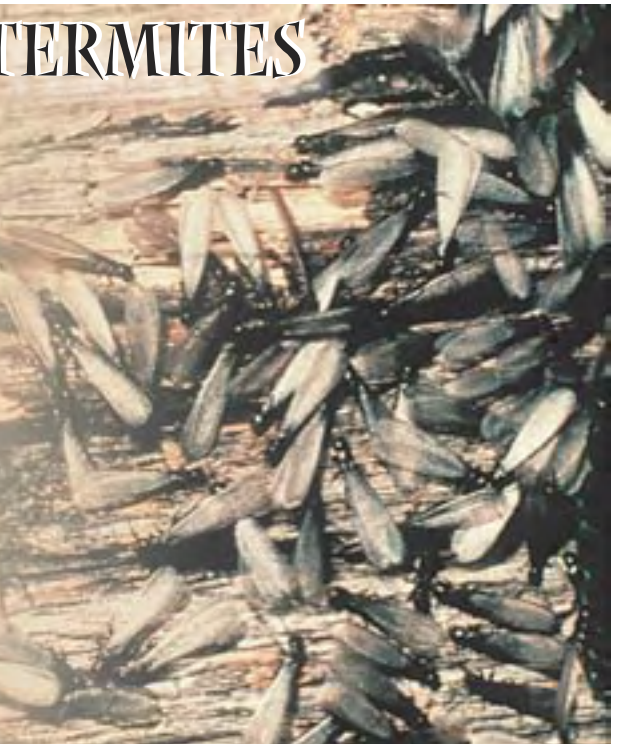


Photo by Cam Lay



Photo by Diane Palmer

Honey bees may be threatened by Africanized bees

By Diane Palmer

Honey bees are called the angels of agriculture because of their work pollinating vegetable and fruit crops. Without them, grocery stores would be missing apples, cantaloupes, cucumbers, squash, and watermelons, as well as honey. In South Carolina, about 2,000 beekeepers manage about 25,000 honey bee colonies.

"Over the past 20 years, honey bees have been threatened by two parasitic mite species and the small hive beetle," said Mike Hood, Clemson Extension bee specialist. "Now, there's a potential for Africanized honey bees to spread into the state."

Africanized honey bees have already established colonies in Florida and are expected to move into neighboring states. Called "killer bees" because of their aggressive behavior, their sting is no more dangerous or painful than that of other bees. However, more of these bees are likely to attack a hive intruder, resulting in more stings.

"South Carolina beekeepers are on the alert for overly aggressive bees and will be our first line of defense against the Africanized honey bees," said Hood.

For more information: Mike Hood 864-656-0346, mhood@clemson.edu, or your county Clemson Extension office.

Coastal longleaf pine forests are being restored

By Tom Lollis

At one time, longleaf pine forests covered more than 90 million acres in the Southeast. But today, fewer than two million acres remain in scattered pockets because of fire suppression efforts that began in the 1920s.

The longleaf pine requires periodic burning to regenerate. Fire removes pine needles from the forest floor and thins the stand of trees, so that seeds can be in direct contact with the soil and receive enough sunlight to grow.

Clemson Extension forester Bob Franklin is helping South Carolina landowners and natural resource professionals restore these forests. Because of his publications, workshops and work with the Lowcountry Forest Conservation Partnership, at least 70,000 acres of longleaf pine have been planted in 12 counties along the state's coast and coastal plains.

The trees are of different ages and heights, making them more resistant to hurricane damage and providing a variety of habitats for wildlife including the red-cockaded woodpecker, the gopher tortoise, quail, wild turkey, and fox squirrel.

Because of these and other conservation efforts, Franklin was honored with the 2005 Clemson Alumni Award for Distinguished Cooperative Extension Public Service.

For more information: Bob Franklin, 843-549-2595, rmfrnkl@clemson.edu.



Photo by Tom Lollis

Animal Co-Products Center dedicated

By Peter Kent

The new Clemson Animal Co-Products Research and Education Center was dedicated in March. This research initiative will serve the rendering industry, which collects and processes billions of pounds of animal remains, the inedible leftovers from meat production.

Clemson researchers will seek new ways to recycle fats and protein from food animal production to create a variety of value-added products, including bio-fuels, fertilizers, soap, rubber, and plastics. Also, the center will work to ensure the safety of rendered products for animal feeds and consumer products, promote environmentally sound practices, and provide educational opportunities in utilizing animal co-products.

For more information: Annel Greene, 864-656-2123, agreen@clemson.edu.



Photo by Tom Lollis

Poultry producers receive bird flu update

By Peter Kent

Concerns continue over the spread of avian influenza, the H5N1 virus called “bird flu” that has affected poultry flocks in Asia. In March, Clemson Livestock and Poultry Health officials held a day-long meeting for poultry producers to review the state’s response plan if the disease should be found here.

Coordination among producers and state and federal agencies is vital to prevent, detect, and respond in the case of a widespread flu epidemic.

“Everyone who may be involved in the bird flu situation must be prepared and know what their role is, so that if pandemic flu does hit, we can detect it quickly and respond aggressively,” said Tony Caver, state veterinarian and director of Clemson Livestock and Poultry Health programs.

This unit is authorized by the S.C. General Assembly to protect the health of the state’s livestock, poultry and companion animals, as well as humans. Their focus is on preventing disease by following standard biosecurity procedures. These include flock management, veterinary care and sanitation, and keeping flocks in enclosed facilities to prevent infection from wild birds or animals. Safety measures also limit interactions between poultry and humans, require the use of protective clothing and footwear, and limit the transfer of equipment between facilities.

For more information: Tony Caver, 803-788-2260, jcaver@clemson.edu, Julie Helm, 803-788-2260 ext. 232, jhelm@clemson.edu, or www.clemson.edu/LPH/.

Heart-healthy beef passes taste test

By Peter Kent

A taste-test panel of 110 consumers sampled pasture-raised beef and asked for more. The study, conducted by Clemson beef expert Susan Duckett, measured public response to the heart-healthy beef to inform the state’s cattle producers.

Nationally, the organic and natural food sector is growing rapidly. Health-conscious consumers are attracted to grass-fed beef because it is leaner with higher levels of conjugated linoleic acids fats and omega-3 fatty acids than grain-fed beef. These compounds have been linked to reducing heart disease and cancer. In addition, grass-fed beef is produced from animals raised without growth supplements.

South Carolina cattlemen have an advantage for producing grass-fed beef because of the state’s long growing season. Duckett is working with Clemson Extension forage specialist John Andrae to identify consumer demand and develop effective pasture management systems. Grass-fed beef is most commonly purchased direct from producers: www.eatwild.com/products/.

For more information: Susan Duckett, 864-656- 5151, sducket@clemson.edu, John Andrae, 864-656-3504, jandrae@clemson.edu.



Nutrition programs guide food choices

By Diane Palmer

To help individuals make healthy food choices, Clemson nutritionist Katherine Cason leads statewide nutrition education programs for limited resource families and children. She created a “Nutrition Mission” CD for fourth through sixth grade students and an interactive “Crib to Kindergarten” program for parents of young children.

She also hosts “Kids in the Kitchen” segments on SC-ETV with her daughter. For her work, Cason was honored with the Joanne Heppes Excellence in Nutrition Education Memorial Award at the national meeting of the American Dietetic Association.

For more information: Katherine Cason, 864-656-0539, kcason@clemson.edu.



Photo by Tom Lollis

4-H programs teach life skills

by Diane Palmer

Clemson 4-H programs are teaching the state's youth leadership, citizenship, and life skills. Three recent events that showcased their accomplishments are the State 4-H Teen Weekend, State 4-H Shot Gun Shoot-Out, and the 4-H Hippology, Horse Bowl and Communications Contests.

At the State 4-H Teen Weekend, 97 teens were challenged to find ways to make a difference in their communities – not just once, but for a lifetime. They spent approximately 350 hours doing volunteer work in the Columbia community. They worked at a food bank, the children's museum, a road race, a state park and at nursing homes. They also sewed 24 wheelchair tote bags and baked hundreds of dog biscuits for an animal shelter.

At the State 4-H Shot Gun Shoot-Out, 63 youths from nine counties competed for an opportunity to represent the state at the national event in South Dakota. The program teaches safe and responsible use of firearms, marksmanship, and the principles of hunting and archery.

At the 4-H Hippology, Horse Bowl, and Communications contests, 103 participants tested their knowledge of horses, horsemanship, horse care, and the horse industry. Winners will represent the state in the southern region championship in Raleigh, N. C. and the eastern national competition in Louisville, Ky.

For more information: Amy McCune, 864-656-6651, amccune@clermson.edu, or www.clemson.edu/4h/.



Photo by Mark Moody

Youth Development Center wins national gardening award

By Edward Smith

Teens in the Youth Development Center won the 2006 Youth Garden Award, sponsored by the National Gardening Association. Their project was one of 50 winners selected from 1,363 schools and community gardening programs nationwide.

Located in Aiken County, the Youth Development Center offers alternative residential learning programs for non-violent juvenile offenders through a partnership between Clemson's Youth Learning Institute and the S.C. Department of Juvenile Justice.

The center delivers a 12-week cycle of educational modules in an outdoor setting to build the skills young people need to succeed in the classroom and in life. The only one of its kind in the state, the center serves up to 60 youths each session.

For more information: Edward Smith, 803-502-1683, lemuels@clermson.edu.

Children need more consistent, caring adults

By Diane Palmer

As the number of children in single-parent homes grows, the need for caring adults in their lives is more important than ever.

Clemson sponsored a national conference on "Strengthening Families, Youth and Communities" in February to help educators and human service workers meet this need. Some 200 professionals attended from 29 states. Workshops included nutrition education, understanding the needs of the elderly, the importance of the family meal, and connecting youths with the community.

"This conference allows professionals to share program ideas and network to meet the changing needs of families," said Deborah Thomason, Clemson Extension family and consumer sciences state program leader.

Don Bower, Extension specialist at the University of Georgia and president of the American Associate of Family and Consumer Sciences, was the keynote speaker.

For more information: Deborah Thomason, 864-656-5721, dthmsn@clermson.edu.





One of the S.C. Botanical Garden's nature sculptures, *Earthen Bridge* by Georgia artist Brian Rust, was strengthened and expanded in February. The wood, clay, and granite sculpture, originally constructed in 1996, was the third in the garden's collection of nature-based art. Now, 13 sculptures have been created, making the Clemson garden one of a few such collections in the world. All the sculptures are designed by well-known artists and constructed by volunteers from Clemson's students, faculty, staff and community members. For more information: <http://www.clemson.edu/scbg/Sculptures/>.

Discovery Education features Clemson food science

By Peter Kent

Food science and human nutrition classes at Clemson University are going national with a program that introduces high school students to careers in food science and technology.

The program is a major focus of Discovery Education's multimedia kits that are distributed to the nation's 18,000 public high schools. These kits include a special acknowledgment of Clemson's contributions along with a multimedia DVD that shows Clemson students at work on their research projects.

Clemson is the only program featured on the front page of Discovery Education's food science website. The site has a description of the "Clemson Experience" and a direct link to the university's website.

Discovery Education, affiliated with the Discovery television channel, partnered with the Institute of Food Technologists to develop this program that meets national science education standards.

"This unprecedented national exposure for Clemson University and its food science and human nutrition program would not have been possible without the dedicated effort of our talented students, hard working faculty and staff, departmental advisory board and the guidance and support of Clemson administration," said John McGregor, food science and human nutrition department chairman.

For more information: John McGregor, 864-650-0817, johnny@clemson.edu, or http://school.discovery.com/foodscience/college_resources.html.

Production agriculture specialists join Edisto

By Tom Lollis

Two production agriculture specialists have joined Clemson's Edisto Research and Education Center in Blackville.

Jeremy Greene has been named cotton entomologist with research and Extension duties in the Department of Entomology, Soils and Plant Sciences. **Will**

Henderson has been named Extension associate with statewide responsibilities for precision agriculture technology in the Department of Agricultural and Biological Engineering.

"We are very excited to have Dr. Greene and Mr. Henderson to provide expertise to our growers," said Steve Meadows, Edisto center director.



Greene

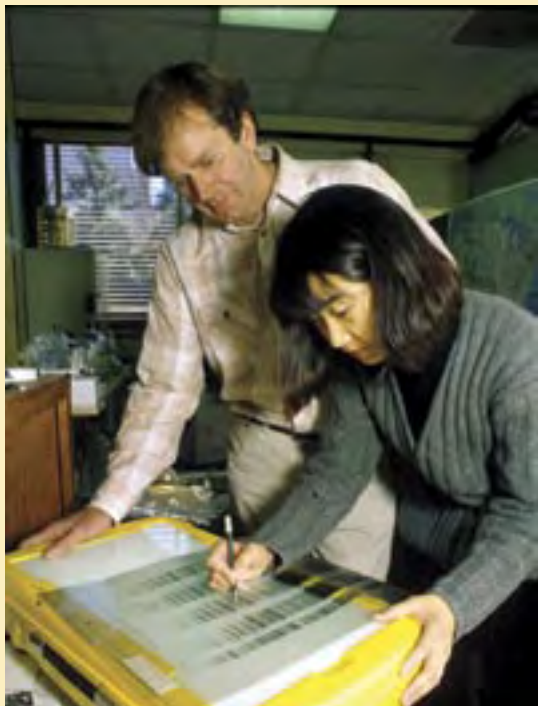
Greene earned his master's and doctoral degrees in entomology at Clemson. Previously, he served as Extension entomologist at the University of Arkansas. He will focus on the pests of cotton and soybeans.

Henderson earned his bachelor's and master's degrees in biosystems engineering at Clemson. He will provide support in precision agriculture, such as variable rate technology, GIS, GPS, and guidance systems.

For more information: Jeremy Greene, 803-284-3343, green4@clemson.edu and Will Henderson, 803-284-3343, whende2@clemson.edu.



Henderson



Coker Genetics Chair named

By Peter Kent

Bert Abbott, an internationally respected fruit geneticist, has been named as the Coker Chair in Molecular Genetics. A professor in genetics and biochemistry, he has been on the Clemson faculty since 1984.

Because of his leadership, Clemson is now recognized as one of the top research groups in the world for the Rosaceae family of fruits, particularly peach. Other members of this family include plum, apricot, nectarine, cherry, apple, and almond. The Clemson team led development of an international genome database: www.mainlab.clemson.edu/gdr/.

"The Coker Chair was created in 1987 as a result of the extensive plant-based genetics research that has been conducted here over the years," said Calvin Schoulties, dean of the college. "Dr. Abbott exemplifies the expertise and imagination needed to lead this initiative."

Clemson scientists are creating genetic maps of crop plants important to South Carolina and the world. These maps are vital references to identify the molecular controls to produce more food and fiber crops on less farmland as world population continues to grow.

For more information: Bert Abbott, 864-656-3060, aalbert@clemson.edu.

Pasture expert to advise livestock producers

By Peter Kent



John Andrae has joined Clemson as a faculty member and Extension specialist in pasture grazing and forage production.

He is a highly regarded expert in soil and crop sciences, including grazing management and alleviating tall fescue toxicosis (a condition that affects cattle and horse production). Other interest areas include using legumes, such as clover and alfalfa, to improve pastures and enhance hay production and quality.

"The cattle industry in South Carolina is a vital part of the state's economy," Andrae said. "I look forward to working not only with beef producers, but also sheep and goat producers, horse enthusiasts, hay producers, and wildlife managers."

A native of Texas, Andrae previously was on the faculty and Extension Service at the University of Georgia. He serves on the boards of directors for the American Forage and Grassland Foundation and the American Forage and Grassland Council.

For more information: John Andrae, 864-656-3504, jandrae@clemson.edu.



The J.D. Massey Classic Horse Show was held in April at Clemson's Garrison Arena. One of the longest running American Saddlebred horse shows in the southeast, it was the inaugural show when the arena opened in 1991. The Massey Classic includes five-gaited, three-gaited, and fine harness championships, as well as hackney pony and roadster horse competitions. This year's event was the largest in the show's 73-year history, with more than 600 stall reservations for the four-day competition. For more information: www.clemson.edu/garrison/.

Mahogany may hold cancer medicine

By Peter Kent

A tree best known for its wood holds promise as a cancer treatment. Clemson food scientist Feng Chen's research shows that distilled biochemicals from African mahogany slow the growth of colon cancer cells in laboratory experiments.

The National Institutes of Health is funding research by Chen and scientists at the University of South Carolina as they seek pharmaceuticals in traditional medicinal plants that may be used to treat colon cancer.

Approximately 40% of U.S. medicines contain chemicals derived from plants, and biochemists and botanists are searching the plant kingdom for new ones. Plant extracts – such as quinine from the cinchona, morphine and codeine from the poppy, and digoxin from the foxglove – are all part of nature's drugstore. Of the estimated 250,000 plant species on earth, only 2% have been thoroughly screened for potential medicinal use.

Not all plant-based medicines are found; some are grown. Clemson researchers are studying "biopharming," a genetic technology that allows plants to grow medicines, such as insulin and vaccines. Business analysts predict that biopharming may generate new businesses and jobs in genetic research and development.

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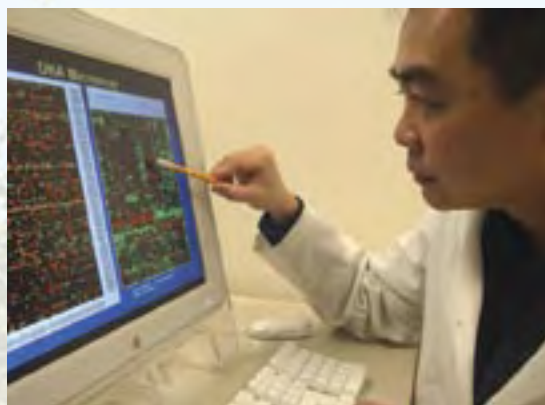


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